

REMARKS

Claims 1-23 are pending in this application. By this Amendment, claims 1, 3, 5-9, 12-13, 16-19 and 23 are amended; the Abstract is amended; and the title is amended. Support for the amendments can be found, for example, on page 13, line 34 and page 16, line 28. No new matter is added by these amendments. Reconsideration and allowance are respectfully requested in view of the amendments and the following Remarks.

I. Objection to Abstract

The Office Action objects to the Abstract because of the legal terms of art used and because the length exceeds 150 words. The Abstract has been amended to omit the legal terms of art, namely "comprising" and "said." Additionally, the Abstract has been amended to conform to the 150 word limit. Withdrawal of the objection is respectfully requested.

II. Objection to Specification

The Office Action objects to the title of the invention because the title is allegedly not descriptive. Accordingly, the title has been amended to: SECURITY DEVICE USING PARALLAX MOVEMENT TO VIEW FRONT AND REAR LAYERS. The amended title is clearly indicative of the aspects of the invention to which the claims are directed. Withdrawal of the objection is respectfully requested.

The Office Action objects to the specification as failing to provide proper antecedent basis for the claimed subject matter. Particularly, the Office Action states that the claimed feature of, "the included angle of the viewing zone defines a distant at least 18% of the dimension of the device in the parallax direction," does not have proper antecedent basis in the specification. However, the Applicant respectfully disagrees. For example, the specification states: "to more precisely specify the required level of movement PD we next invoke the second requirement, namely that PD must not be less than 18% of the effective width of the device which as part of scenario A we suppose to be 22 mm." See page 31,

lines 3-7. The specification further explains that PD is the total parallax displacement. *See* page 12, line 27. Therefore, the specification provides proper antecedent basis (or support) for the recitation objected to by the Office Action. Withdrawal of the objection is respectfully requested.

III. Objection to Claims

The Office Action objects claims 1-23 for recitations lacking proper antecedent basis. The objection is respectfully requested.

The Office Action objects claim 1 because of the following recitations: "the rate of movement," "the included angle," and "the dimension of the device in the parallax direction." Accordingly, each of the above-mentioned recitations of claim 1 are amended to provide proper antecedent basis. Withdrawal of the objection is respectfully requested.

The Office Action objects claim 18 because of the following recitation: "the dimension of the device in the parallax direction." However, in view of amended claim 1, proper antecedent basis is provided in claim 1, from which claim 18 depends. Withdrawal of the objection is respectfully requested.

The Office Action objects claim 19 for the recitation: "the interplane distance." Accordingly, claim 19 has been amended to recite "an interplane distance." Withdrawal of the objection is respectfully requested.

IV. Rejection under 35 U.S.C. §112

The Office Action rejects claims 1-23 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. The rejection is respectfully traversed.

The Office Action first states that, "[s]ince no [viewing] angle of limitation is given, it is unclear how one of ordinary skill in the art would make or use the security device with the desired parameters of claim 1 without undue experimentation." With respect to this alleged issue, the Applicant has amended claim 1 to recite, " . . . on tilting the device through a

maximum viewing angle of 45 degrees," Support for this amendment can be found, for example, on the last line of page 13 of the specification, which states, "viewing angle for a 6mm sample @ 45 degrees giving parallax displacement of 5mm"; and at page 16, lines 27-29 which states, "wherein suppose the hologram is recorded to have a total viewing angle of 45 degrees, hence Φ_{MAX} equals 25.5 degrees (0.39 radians) and thus tangent (Φ_{MAX}) = 0.4." Therefore, because of the maximum viewing angle of 45 degrees is expressly recited in the claim and because the recitation is further explained in the specification, Applicant submits that one of ordinary skill in the art would make or use the security device with the desired parameters of claim 1 without undue experimentation.

The Office Action also supposes that the apparent distance between images or objects 1 and 2 (along the line of sight) will vary with viewing angle. This may be true, however, it does not alter the validity of claim 1 under 35 U.S.C. §112. Typically, in an exemplary security hologram, the front (2) and rear plane objects (1) will be located on 2D planes (artwork masks). Thus, the hologram user may want to know what distance he/she should locate plane/object 1 behind plane/object 2. Thus, LD, the orthogonal separation between the artwork planes (i.e., distance at zero degree viewing angle) is a pertinent parameter. More particularly, its value remaining invariant of viewing makes it appropriate to include the viewing angle within the claimed language. Therefore, undue experimentation is not needed to determine the appropriate viewing locations, viewing angles, object separations and reference locations for measurement to determine a "rate of movement." Withdrawal of the rejection for lack of enablement is respectfully requested.

The Office Action rejects claims 8-10 and 12 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The rejections are respectfully traversed.

The Office Action rejects claim 8 and 12 as being indefinite because the phrase "and/or" allegedly renders a claim indefinite by making it unclear whether the limitations following the phrase are to be considered part of the claim. Accordingly, both claim 8 and 12 are amended to recite, "at least one of the first holographic image element and the second holographic image element." Withdrawal of the rejection is respectfully requested.

V. Rejections under 35 U.S.C. §103(a)

The Office Action rejects claims 1-8 and 14-22 under 35 U.S.C. §103(a) over U.S. Patent No. 4,568,141 to Antes; rejects claims 9-12 under 35 U.S.C. §103(a) over Antes in view of U.S. Patent No. 6,765,704 to Drinkwater. The rejections are respectfully traversed.

Antes is directed to a typical document having optical-defraction authenticating elements. Antes is a classic Kinegram disclosure wherein kinetic light patterns are provided in a security device by predetermined 2D arrangement of diffraction gratings. *See* abstract, "[t]he diffraction-optical authenticating element provides a color pattern moving at a predetermined velocity along a predetermined track when the document is illuminated from a first direction and viewed from a second direction," Specifically, a light pattern is created with an image element or icon by subdividing the image element (see arrow on Fig. 5) to a sequence of structure elements S_i (which are, in effect, variably shaped pixel elements). Each pixel has a particular grating pitch and orientation, but importantly is in a predetermined 2D arrangement of diffraction gratings.

Antes may be comprised of one or more such image features or icons. Critically, however, all of the image features are located on the surface plane of the device—not "in a plane based from said image plane of the first holographic element," as recited in claim 1. Thus, movement in Antes is generated not by parallax motion between objects in two planes as claimed, but instead by progressive changes in grating value in each respective structure element.

More specifically, Figs. 2, 4 and 5 of Antes may give the appearance of layered imagery, but in fact they show the 3D angular viewing hemisphere into which each structure element can theoretically replay. Fig. 2 is denoted as authenticating element 3a, whereas the color patterns 10 such as those shown in Fig. 1 move along the tracks B_i and comprise individual structural elements S_n and S_{n+1} . In Fig. 4 the incident angular region which results in a color effect (Fig. 3), when viewing the structural element S at right angles, is denoted by an elliptical surface 11. Also, Fig. 5 denotes an authenticating element 3b having a single track of movement B_i , showing the various grading constants of the structure elements. Importantly, the figures do not show layered imagery but in fact they show the 3D angular viewing hemisphere into which each structure element can theoretically replay.

Indeed, Antes does not relate at all to the relationship between depth and parallax movement and is thus irrelevant to the present claims. Therefore, Antes fails to disclose and would not have rendered obvious, "at least a first holographic image element in an image plane spaced from the surface of the microstructure, the device exhibiting at least one further image in a plane spaced from said image plane of the first holographic element," as recited in amended claim 1.

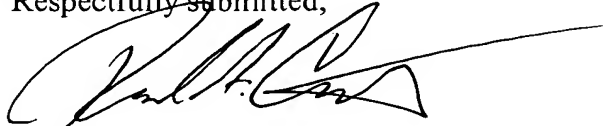
Therefore, claim 1 is patentable over the applied reference. Claims 2-23 are also patentable, at least for their dependency from independent claim 1, as well as for the additional features they recite. Accordingly, withdrawal of the rejections are respectfully requested.

VI. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:

Petition for Extension of Time
Amended Abstract

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